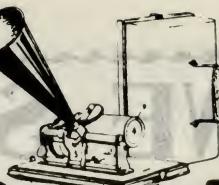


The HILL AND DALE News



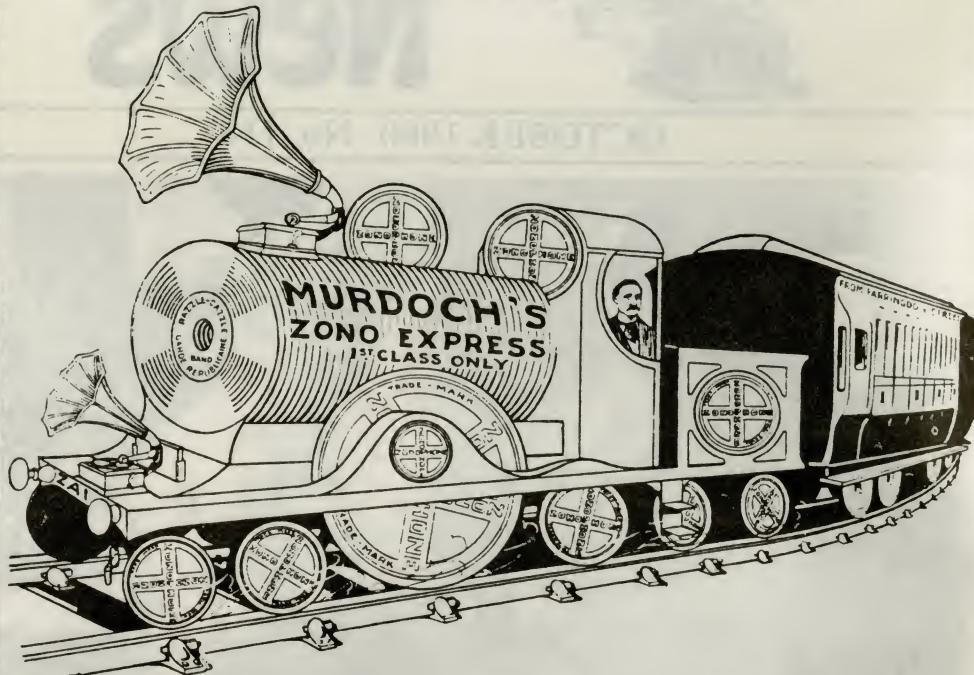
OCTOBER 1980 No. 116



MALVERN PHONOFAIR:

Stewart Matthews is presented with one of the two competition prizes. In the background, visible over the Chairman's right shoulder, is Mike Field, the brains behind the event.

WE SUPPLY ALL
Leading Lines in Talking Machines
BUT
ZONOPHONES
Are an Easy FIRST.



ALL SELLERS IN ZONOPHONE RECORDS KEPT IN STOCK.

September Supplement Ready.

A Marvellous Selection.

JOHN G. MURDOCH & Co., LTD.,
UNIVERSAL TALKING MACHINE PROVIDERS,
91 & 93, Farringdon Road, London, E.C.

CHAIRMAN'S CHAT

I can never quite make up my mind whether this column is an 'Editorial' or a 'Chairman's Chat', and I am trying to think of an all-embracing title, preferably monosyllabic, to save time with the Letraset. Constructive suggestions welcome!

In this column in June I mentioned in passing the subject of needle tins and their current importation from South Africa. This has prompted a letter from Alexander von Tutschek in that country, with some interesting information on the subject. He points out that few, if any, needle tins were actually manufactured in South Africa apart from blue HMV and Columbia Duragold tins, which were made in the Union of South Africa and filled with imported needles. This has long been my own impression, and it is good to have some positive information on the subject. Mr. von Tutschek lists three reasons for the survival of so many immaculate tins in his country; 1) Acoustic machines were used there much later (by the natives) than in Europe; 2) Most come from Indian 'general stores' or bicycle shops. Indian owners rarely throw anything away, even when it is long obsolete, although old stocks are usually thrown away when Indians have to move to new premises. 3) In the interior of South Africa, nothing rusts - hence the mint condition.

Supplies are dwindling however, and Mr. von Tutschek warns over-optimistic collectors against travelling to South Africa in the hope of finding a wealth of gramophones or needle tins.

Puzzled, perhaps, by my feeling that these needle-tins are not as collectible as those one finds inside gramophones, my correspondent poses the question, Is one of a batch of 200 brand new Edison Operas, found in a warehouse, any the less desirable than the more usually found one off? The simple answer to that, I think, is yes. Of all phonographs, the Opera in particular has an intrinsic value as a handsome and well-made piece of machinery (unlike our friend the needle tin), but even so its very scarcity is one of the reasons for its desirability among collectors, and I doubt very much if I would want to pay the present market price for one (even if I could afford it) if I knew there were 199 others where that came from. That, of course, is a rather simplistic way of looking at it, but there is also the lack of discovery in buying one from such a batch. Perhaps the most enjoyable part of collecting is the tracking down of objects, and the more unlikely the place the better. If you are the one that finds that warehouse full of Operas, then it would be the find of a lifetime, but I would not find anything like the same satisfaction in going to a specialist phonograph dealer, for example, who had acquired all or some of them and was offering them for sale.

If I feel this about an Opera, then obviously I would feel it even more about needle tins, whose intrinsic value is nil, and which, in the case of those under discussion, are not relevant to the rest of my collection. It does not matter whether they come from South Africa, Timbuctoo or the North Pole, but for me (and I must emphasise that this is purely a personal view) it does matter that they are tins which were available to the ordinary gramophone-using public in Great Britain in the days when gramophones were a part of everyday life and not toys for nutty collectors!

THE HORN FORM

by R. H. Hiorns

The exponential horn described by Percy Wilson in 1929 was essentially derived from Lord Rayleigh's study of propagation of waves in straight tubes, "The Theory of sound", 1878, followed by an examination of the behaviour of sound in conical horns. Later A. G. Webster (1920) and Hanna and Slepian (1924) made contributions to the theory.

In a straight tube the wave form is plane, and at an angle of 90° to both the axis of the tube and the tube wall, otherwise energy would be lost through vibrations communicated to the wall of the tube, while reflections there from would distort the original wave.

The basic exponential curve was calculated mathematically using the plane-wave theory, modified later to allow for a proportion of curvature in the wave-form which obviously existed in reality to some (unknown) degree. Paul Voight published the Tractrix curve in 1927. In this case the theory used assumed a spherical wave form with the profile at all times at an angle of 90° both to the axis of the horn and to the wall thus in agreement with the plane wave theory for straight tubes, though whether the curve of the wave in reality approaches the theoretical form is not proven.

Being of a practical nature and somewhat dim when confronted by complex mathematics, and the Tractrix formula is admitted to be quite complex by Mr. Voight, I have always felt that the most satisfactory method to construct such an obvious geometrical form would be found in geometry but the method has eluded me for years. I was consequently delighted to find recently in an engineers pocket book - the SCHIELE CURVE, a few minutes study of which revealed that it was in fact a tractrix curve and very close to an exponential curve over part of its length.

In order to illustrate the construction of a schiele curve I will propose to design a gramophone horn with a flare diameter of 22 inches and a throat diameter of $1\frac{1}{2}$ inches, the length will derive from these figures. The diagrammes are $\frac{1}{4}$ of full scale. Examine first figure ONE.

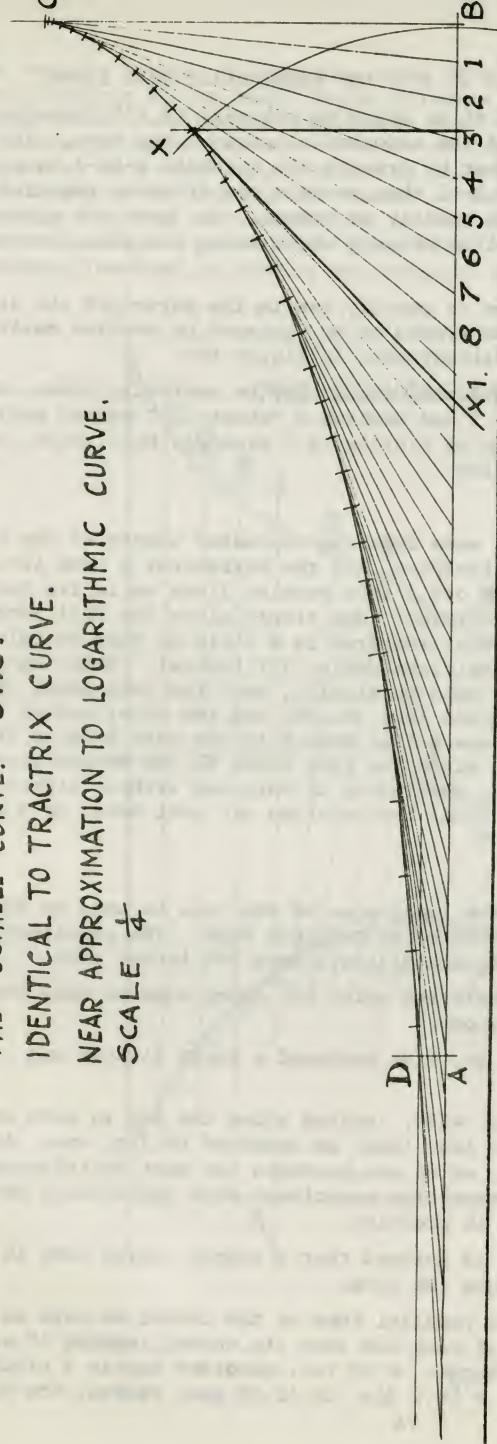
Draw in ink the base line A-B to represent the axis of the horn, longer than estimated as the construction requires a spare length beyond A equal to the flare radius. Draw the vertical, B-C and mark off the radius of flare required, in this case 11 inches. Using dividers mark off on the axis divisions 1-2-3 etc. which must be at least 10 to the length of the flare radius, in this example the divisions are 1 inch making 11 to the flare radius.

The following construction lines should be marked in pencil.

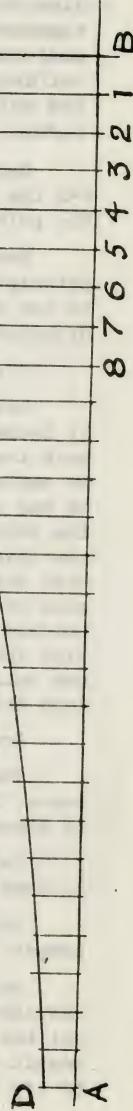
From point C draw a line to point No.1 on the axis. With a compass set to 11 inches (the flare radius) using point one as centre mark off the 11 inch distance on the line just drawn. From the mark draw line No.2, and using No.2 as centre, mark an arc on the second line. Repeat this procedure until near the throat radius where a line parallel to the axis, distant $\frac{1}{4}$ inch will locate point D; when the curve is complete. The length of the horn then appears, being (full scale) $27\frac{1}{2}$ inches. For the illustration I ignore the $\frac{1}{4}$ inch.

The curve of the tractrix horn terminates at the flare 90° off the axis, it can go no further. An arc drawn to the flare radius at this point illustrates the theory, being a semicircle at right angles both to the axis and the flare, and (in theory) represents the wave profile at the moment of release. Each of the arcs used in drafting the curve if continued to cut the axis would represent the wave at

THE SCHIELE CURVE. - ONE.
IDENTICAL TO TRACTRIX CURVE.
NEAR APPROXIMATION TO LOGARITHMIC CURVE.
SCALE $\frac{1}{4}$



THE SCHIELE CURVE - TWO.



that point, one example only is drawn at X-B, the exponential horn flare.

The exponential horn terminates at an angle to the axis of 45° therefore the line X-3 points to the termination of the exponential part of the horn. If the exponential horn only is required start by drawing the triangle X-Xl-3 to a larger scale making X'3 11 inches, the line X-Xl then reveals the distance required to set the compass to mark off the curve exactly as before. Or, mark the distance C-B off on the axis, draw the first line between those marks and then proceed as before.

Having completed the construction in pencil, ink in the curve and the line A-D the construction marks can then be erased to be replaced by section marks from the points 1-2-3 etc. on the axis as illustrated in figure two.

Having thus described the means whereby a horn may be correctly drawn, and the principle of construction understood, I can mention a "short-cut" method published in the Wireless World in March 1974 in an article by J.Dinsdale M.A., M.Sc. which displayed some anomalous characteristics.

First, the method.

Draw the axis A-B longer at both ends than the estimated length of the horn. 11 inches from the left draw the vertical A-D, and the horizontal $\frac{1}{4}$ inch line to mark the throat radius. From A-D mark off 1 inch section lines as in fig.two until an ample number are provided. Fix a straight edge firmly along the full length of the axis just touching the line. Next required is a strip of wood to rule off the sections of the curve marked to the flare radius (11 inches). Start at point D, the throat radius, with pencil or pen held vertically, rest the rule above the pen with the 11 inch mark on the next section line (No.26) and the other end of the rule resting on the straight-edge. Draw a line from D to the next section line; holding the pen firmly at that point, slide the rule along to the second section line (No.25). Follow on with the pen, continuing in this way without lifting the pen until the flare is reached. The final two sections are best drawn in 4 parts each otherwise the shape is quite lost.

Now the anomaly.

The instructions indicate that the lower edge of the rule is used to draw the curve, logical enough as this edge touches the straight edge. The resultant curve is steeper and 1 inch shorter than fig.one giving a horn 26 $\frac{1}{2}$ inches long.

Using a rod $\frac{1}{4}$ inch square as a rule and using the upper edge to draw the curve it came identical to the curve of fig.one.

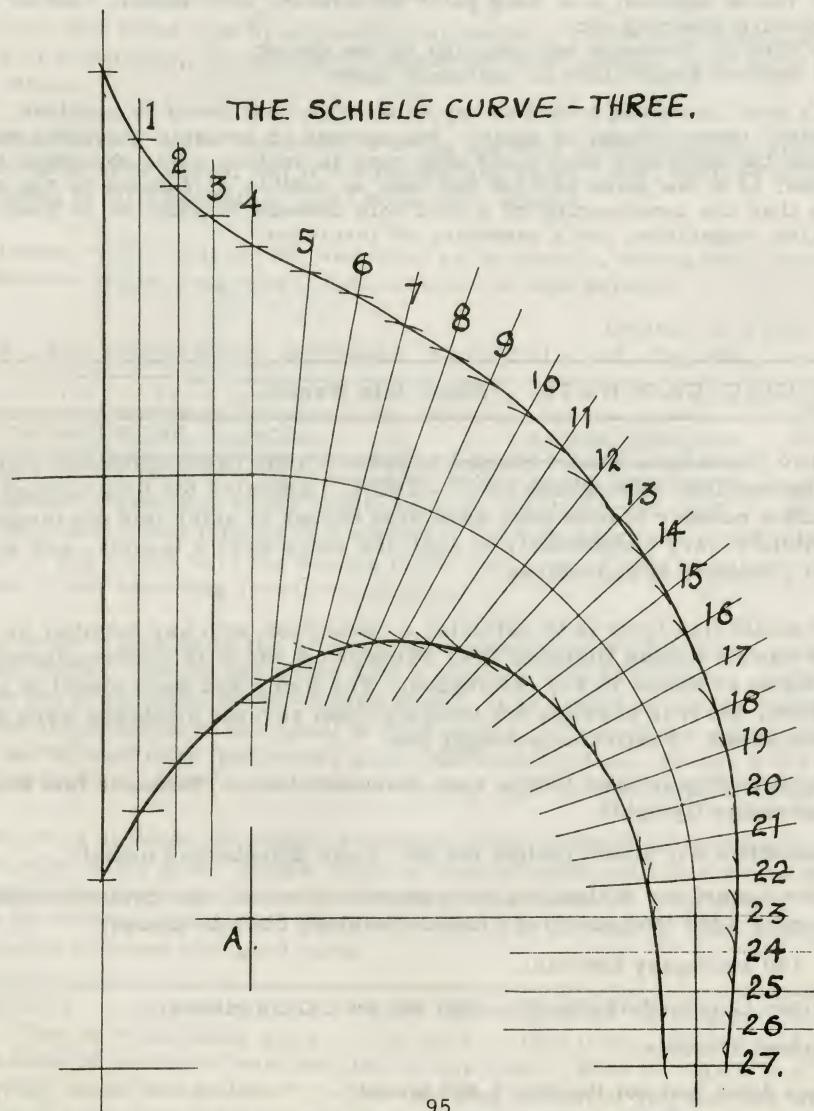
Using a rule $\frac{1}{4}$ in. thick $\times \frac{5}{16}$ in. wide produced a curve flatter and 3 inches longer (horn 30 $\frac{1}{2}$ ins. long).

Using a rule $\frac{1}{4}$ in. thick $\times \frac{1}{8}$ ins. wide, (ruling along the top in both cases) resulted in a horn 6 $\frac{1}{4}$ ins. longer (34 ins. long) as compared to fig. one. Although all the curves are obviously related, which one produces the most satisfactory result in practice? Here lies an interesting experiment when opportunity permits, to try variously proportioned models in practice.

To carry the example further it is assumed that a simple curved horn is required to bring the flare to face forward into the room.

Allowing the odd half inch to be parallel tube at the throat we have an axis of 27 inches, allow 4 ins. straight at each end (see fig.three) leaving 19 sections of 1 inch each to be brought into a curve. A 19 ins. quadrant equals a circle of 76 inch circumference, $76 \div \pi (3:1416) = 24.2$ dia. or 12.09 ins. radius, the distance

for the compass setting to draw the curve from point A to the horizontal and vertical sections of the axis. Using dividers mark off from fig. two the sections on to the curved axis of the drawing, as fig. three. Using a needle or nail in point A and a straight edge, draw the sections of the curved part and then add the straight 4 sections at each end. Next, referring to the sections of fig. two transfer each section length to its appropriate number on the third drawing, the profile can then be inked in. It will be noticed that it will be impossible to follow the actual sections on the lower part of the flare about numbers 3 to 8. Here lies one of the inaccuracies involved in curving the straight horn.



I do not take the various departures from strict theory in forming a practical horn too seriously, no one has yet proved, to my knowledge, how accurate each theory proves in practice. Consider how the final sonic behaviour of the horn can be influenced:-

- by the material of which the horn is constructed
- the thickness of this material
- the finish applied, e.g. hard paint or varnish, wood veneer, leather or plastic covering etc.
- the form of diaphragm and coupling to the throat
- the various proportions as mentioned above.

If a horn is curved, folded or any other form than round in sections, the mathematical theory ceases to apply. Photographs of acoustic recording studios often show the recording horn bound with tape in various ways, obviously to modify resonances, if a few yards of tape can make an audible difference to the sound it suggests that the construction of a good horn demands in addition to theory, bags of practice, experience and a seasoning of intuition!

EDISON DISC CABINETS - Some Help Wanted.....

Over two years ago, when I started to research the background and story of the Edison Diamond Disc phonograph (1912 - 1929), I appealed for help through these columns and a number of members were kind enough to enter into correspondence. This has helped very considerably to draft the story after a fashion, and work is proceeding on a number of appendices.

What I would like to do is to establish a connection with any member or member's friend who has an Edison Diamond Disc Phonograph which is unconventional and not listed as far as is known in any catalogues. The Army and Navy model is known and accounted for, but it is possible for instance, that several machines were put into grand piano cases. Particularly sought are:

Mahogany Hepplewhite (05) in very elaborate form - ?console (not the H-19 Hepplewhite Upright)

Elizabethan Art Model (unlike the No. 5 oak Elizabethan model)

Italian American Walnut - a very expensive model, the cabinet costing the Company \$286 (Not the IU-19 Italian Umbrian console please).

No. 150 Mahogany Colonial.

Various Chippendale consoles (but not the CC-32 please)

Jacobean Console.

Queen Anne (but not the No. 6 Art Model)

William and Mary Upright (other than W-250 and WM-19 models).

William and Mary Console (other than the WMC-33)

Italian Renaissance (3 were probably sold in Nov. 1924)

Tudor, a model of about April 1921

Consolette - a very late standard/l.p. machine

Any Chinese lacquer finish models.

To show that these are by no means impossible I can report finding through the kindness of a member, the unusual A-85 not far from London, and would be glad to hear of others.

This has been a time-consuming evening job ever since starting, and there are still months of work ahead, but it's a fascinating story, and I venture to think it would appeal to all Edisonites, and I hope some others.

All letters will be answered, and later as necessary, photographs will be paid for. I hope to report progress in future issues of this journal.

George L. Frow

D. I. Y. GRAMOPHONE BADGES

by Ken Champion



Would you like to have a lapel badge or tie-pin in the likeness of a gramophone to proclaim to the public at large your interest, and perhaps thus make new friends or converts? Such an ornament is not difficult to make and if you do not have the simple tools, you may be able to borrow them, perhaps from a lady attending jewellery classes.

First make a tracing of the accompanying drawing and glue it to a piece of brass $\frac{1}{2}$ to 1mm. thick. Cut out the shape with a piercing saw or fretsaw, using a medium to coarse (44 to 32 teeth) metal-cutting blade. It is easier to cut the middle first, before the shape becomes too small to hold easily. Clean up the edges with a needle file and polish with very fine emery paper and metal polish. Solder a pin to the rear and the job is done, apart from a layer of clear nail varnish to protect the polish.

If the pin is straight the badge is liable to work loose; this can be overcome by putting a twist in the pin. Brass is fairly easy to work and takes a nice polish, but other materials can be used, such as copper, aluminium or even plastic - perhaps you have an expired credit card you could use. The pin can be fixed with Araldite, and the badge finished with gold paint.

OVERLEAF is an advertisement which appeared in the Talking Machine News in 1906. Very few machines were 'All British' at that time, and it would be interesting to know if the claim was justified in this case. What on earth is a Vertical Ball Bearing Sound Box Holder? As for that Dog Model, if you find one with this extension, it is rarer than the original, and not home-made, so do not reject it!

Fitted with Gardner's Unwearable Needle. | Fitted with Gardner's Unwearable Needle.

The Nelson
All British
Talking
Machine.



10-in. Turntable.

Price £6 15s. complete.

BRASS OR FLOWER HORN TRUMPET.

Double Spring £7 15s.

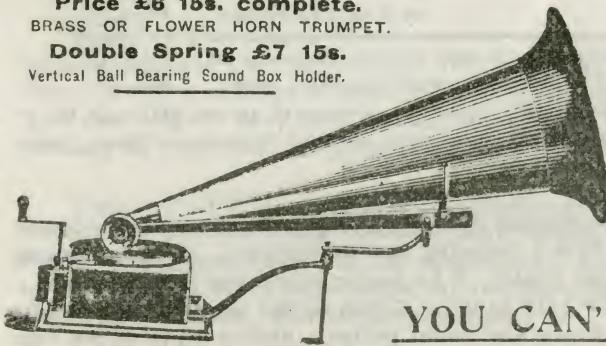
Vertical Ball Bearing Sound Box Holder.



Price £6 10s. complete.

Double Spring £7 10s.

Vertical Ball Bearing Sound Box Holder.



Make your old Gramo the equal
of your neighbours' Monarch

Use our Extension.

Price 25s.

YOU CAN'T DO WITHOUT

THE UNWEARABLE NEEDLE, does not tend to injure the Record, because the extreme hardness of its points prevents it wearing a rough surface on itself, so it has no tendency to scratch up the record, but takes every vibration without avoidable friction, a result not obtained in any steel or other Needle.

DAVID BRUCE & Co., Limited.

Sole Licensees and Sole Manufacturers of the British Talking Machine.

(WHOLESALE ONLY).

All British Made.

Phone 5064 Gerrard.

FROM ORCHESTRELLE TO VOCALION

AN ACCOUNT OF THE AEOLIAN COMPANIES AND THEIR INVOLVEMENT IN TALKING MACHINES - PART 1 by Frank Andrews

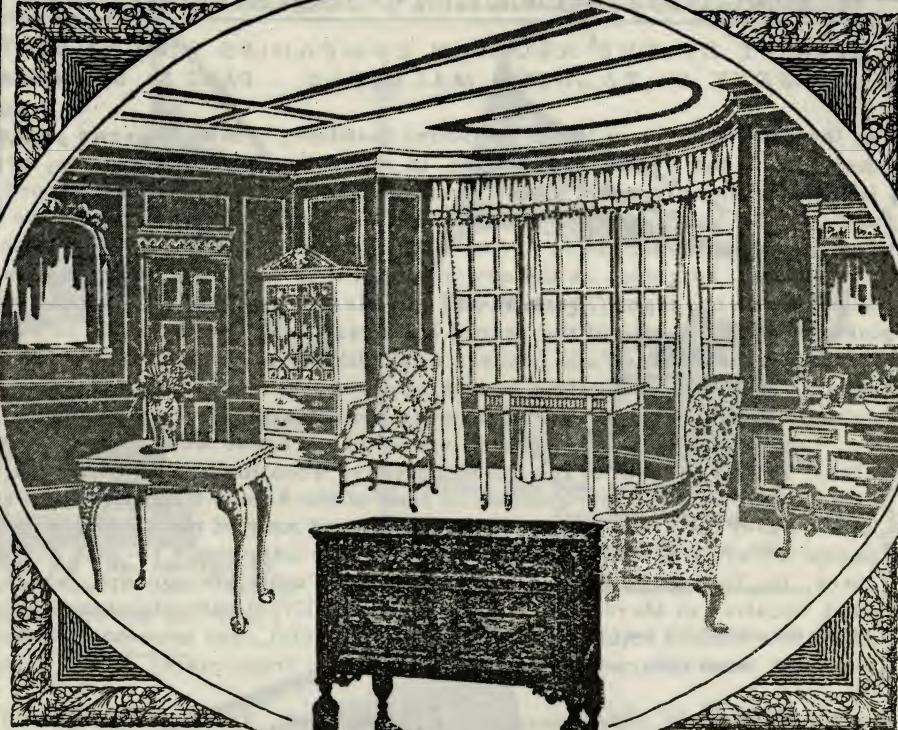
***** At the June Meeting at the Bloomsbury Institute, Frank Andrews presented the story of the Aeolian Companies in relation to talking machines, helped by Len Watts who projected slides of various Aeolian and Vocalion record labels and by John McKeown, who brought along an Aeolian Vocalion machine and demonstrated the Graduola device with great skill. A full account of the evening will not be given, as the articles following give more information than we heard on the night (Frank having left his notes at home), but the story was taken beyond the sale of the record business to the Vocalion Co. in 1925, which concludes the articles and readers might like to know that, faced with the appearance of Western Electric recordings from its rivals, the new company eventually acquired an electrical process from Marconi's Wireless Telegraph Co. Ltd. and the first discs made under this process were on sale in November 1926. In July/August of the following year, Vocalion and Aco records disappeared, following the introduction in June of the 8-inch Broadcast records. These upset the established record trade, and none of the trade papers would accept advertisements for them. There were later some 10-inch Broadcast discs, the last three types coming from the Crystalate concern, which purchased Vocalion in March 1932. Subsequently, Crystalate abandoned Broadcast and (after a brief amalgamation) its own Imperial, and concentrated on the new REX label (which had been a Vocalion Co. trade mark). - Ed. *****

The word 'Aeolian' was copyrighted at Stationers' Hall, London, during the 1890s by an Australian inventor, who produced a small brochure lauding the merits of his Aeolian device. This was applied to the construction of organs, and it may be assumed that when the Orchestrelle Company of America put its Aeolian organs on sale in Britain, the right to use the Aeolian name had passed to them, whether or not the invention itself had.

At some time in 1899 the Orchestrelle Company (of Westfield, New Jersey, U.S.A.) opened a branch in Regent Street. Claiming to be one of the largest musical instrument makers in the world, this company offered for sale many types of organs, including Orchestrelles and Aeolians, harmoniums, pianofortes and Pianolas, harps, violins, cornets and other varieties of musical instrument. They also sold perforated music rolls for use in Pianolas, Orchestrelles and similar self-playing instruments. The company was not involved at this time with talking machines or records, either in America or London.

Four years later, in November 1903, the Orchestrelle Company formed a new private limited liability in London, which was registered as 'The Aeolian Company, Ltd.', with a nominal capitalisation of £1,000 and its registered office at 1, Bloomfield Place, New Bond Street. One of the new company's objectives was stated to be the promotion of the Orchestrelle Company's business in Britain (and one may de-

SEPTEMBER, 1919.



The AEOLIAN 'VOCALION'

*is built like a musical instrument
with an equal degree of tonal refinement.*

It reproduces all musical tones with a fidelity foreign to instruments of the gramophone class, preserving exactly the characteristics and quality of the original instrument or voice.

The 'Graduola,' which is an exclusive feature of the Aeolian 'Vocalion,' gives you personal control of tone. By the pressure of a finger you can vary every performance, note by note, and phrase by phrase, in harmony with your mood. What this means to the quality of the music, no longer bound by the rigid limitations of the record, can only be realised by hearing and playing the instrument; this you are always welcome to do at Aeolian Hall.

If unable to call write for Catalogue 9.



H M THE KING

The AEOLIAN Co., Ltd.

(Formerly The Orchestrelle Co.)

AEOLIAN HALL,
131-7 NEW BOND STREET, LONDON, W.1.



H M ALBERT EDWARD

duce from the company's name that the Aeolian organs were to be the leading line). Among the directors of the Aeolian Co. Ltd. were the President of the Orchestrelle Company of America, Harry B. Tremaine, G.F.W. Reed (another American director) and a Mr. George Sired from the Paris house. In March 1905, the Orchestrelle Company's London Branch, which had acquired leases on a number of premises in London during the previous six years, sold the majority of these leases to the Aeolian Co. Ltd.¹

In June 1905, the Aeolian Co. Ltd. increased its share capitalisation from £1,000 to £10,000. Except for eight 'Founders' shares', all the Aeolian Co. Ltd. shares were held by the Orchestrelle Co. of America.

With the two London companies selling their musical instruments and staging concerts at the Aeolian Hall for the next four years, we arrive at October 12th 1909. On this day, the Universal Music Co. Ltd. was incorporated with its registered office at Goldsmith's Building, Drury Lane. The Aeolian Co.'s directors formed the board of the new company, apart from Mr. Sired. One of the objectives of the new company was to take over the manufacture and sale of perforated music rolls from the Orchestrelle Company.

Like other business enterprises in the United States, the Orchestrelle Co. had various companies in a number of states of the Union, and it was one of these, The Aeolian Company of New York which, in May 1910, announced that it was to start stocking and selling phonographs (gramophones). These were to be of other companies' manufacture. As yet, I have no evidence that the Orchestrelle Co.'s businesses in London also took on the sale of talking machines at that time.

The story moves to July 1st. 1912, when the London branch of the Orchestrelle Co. was superseded by a newly-registered private limited liability company, The Orchestrelle Company Ltd., with its registered office at the Aeolian Hall.²

Besides taking over the business of the Orchestrelle Co.'s former London Branch, The Orchestrelle Co. Ltd. also took control of the following companies, which had been controlled by the Orchestrelle Co. of America: (1) The Aeolian Company, S.A. (Paris); (2) The Steck Pianoforte G.m.b.H. (Gotha, Germany); (3) The Choralia Company m.b.H. (Berlin); (4) C. Milson and Son Ltd (England); and (5) The Universal Music Co. Ltd. (Hayes, Middlesex). The Orchestrelle Co. Ltd. also entered into a commercial agreement with the Aeolian-Weber-Piano and Pianola Company

¹ These included Nos. 135 - 7, New Bond St. (the buildings which had been refurbished as the Aeolian Hall), the lease to expire in 1956; properties at 123 and 123½ Regent St; and properties at 59 and 67 Farringdon Road. The Orchestrelle Co. retained its leases on 225 Regent St. and 69 and 71 Farringdon Road. Completion Date for the sale of the leases was December 31st., 1905. By its Articles of Association, the Aeolian Co. Ltd was bound to allow the Orchestrelle Co. occupancy of any of its leased buildings, either for rent or gratuitously.

² The leasehold of the Aeolian Hall was still held by the Aeolian Co. Ltd.

of America, the parent company of the Orchestrelle and Aeolian companies.

This new company was capitalised at £700,000. The board of Directors consisted of Sir Richard Willness-Buckley of Anglesey, Sir William Younger of Moffat, N. Brunswick, Alfred James Mason (Managing Director, also Managing Director of the Aeolian Co. Ltd.), James Alexander Stuart Mackie of London, and G. W. F. Reed of the Aeolian Co. Ltd and H. B. Tremaine.

THE COMING OF THE VOCALION GRAMOPHONES

During 1912, an Australian by the name of F. J. Empson arrived in London with a gramophone containing a revolutionary invention. He had bought a gramophone of a leading make many years earlier, but being intensely musical he was not satisfied by it; he felt keenly its inability to reproduce the finer and more subtle effects. Furthermore, it left him nothing to do but listen. It is said that Empson had an intense desire to exercise his interpretative instinct by introducing slight modifications to the sounds, to give recordings new meaning and interest.

Empson was an inventor and he devoted himself to finding a means by which recordings of master artists could be heard again and again without monotony - a means of introducing the subtle and changing shades of expression with which musicians themselves vary their performances. His efforts met with success, and having secured Letters Patent on his device he sailed for London, confident that he need but show it to the manufacturers of gramophones in Britain for it to be immediately accepted and adopted.

Such was not the outcome. He had much difficulty in trying to interest British manufacturers and finally, very discouraged, he made arrangements to return to Australia, but in saying his 'Good-byes' to H. S. Spottiswoode, Chairman of Broadwood and Sons, the piano manufacturers, he was advised to call on A. J. Mason, the Managing Director of the Aeolian Co. Ltd., a company of which Empson had not heard.

A meeting with Mason was arranged, and the invention was shown to the technical staff at the Aeolian Hall, probably in 1913. Mason then sent a cablegram to New York which read:

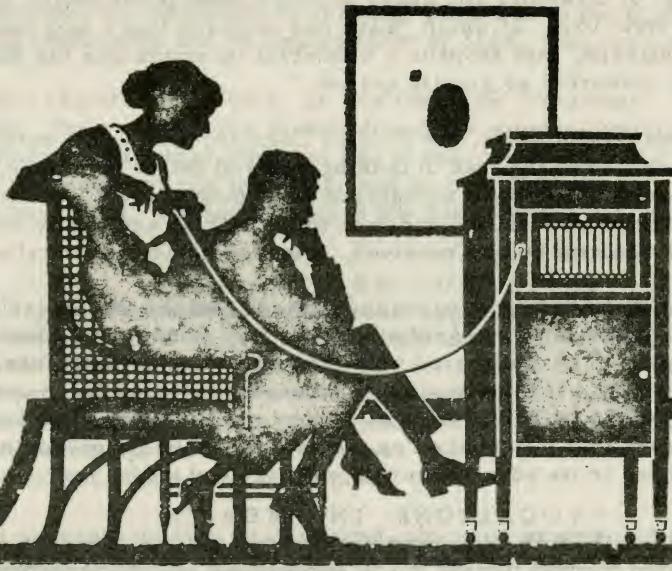
"Tremaine, New York - Have been offered exclusive rights for a very remarkable talking machine, different from and superior to any machine ever seen. Propose sending inventor to America and submit his instrument for your approval. - Mason, London."

The reply from New York read:

"Mason, London - As we are not at present considering manufacturing talking machines, do not see how instrument can interest us. If you think it sufficiently exceptional to send under circumstances, do so, but secure option on invention before inventor sails. - Tremaine, New York."

Mason's reply:

"Tremaine, New York - Inventor with machine sailing Saturday. Mauretania. - Mason, London."



THE AEOLIAN 'VOCALION' and the 'Vocalion' RECORD.

Made by the world's foremost manufacturers of musical instruments the Aeolian 'Vocalion' plays all makes of records with a truth and purity of tone unknown in any other make of gramophone, while the Graduola is an added interest of the greatest musical and artistic value, by which you may, by shading the tone volume, impart your own individuality to the rendition.

'Vocalion' Records are the finest achievement in the art of recording. Their supreme quality is apparent in all standard gramophones.

THE FINEST COMBINATION IN THE GRAMOPHONE WORLD.

The Aeolian 'Vocalion'
& the 'Vocalion' Record.

*We invite correspondence from dealers.
Vocalion Records are supplied direct to
the Trade. Not through factors.*

THE AEOLIAN CO., LTD.,
AEOLIAN HALL,
NEW BOND STREET,
W.1.

Empson arrived in New York on a Saturday. On the following Tuesday afternoon there was a meeting of directors and heads of department in the Board Room in the Aeolian Building in New York, at which "Each one realised that a new epoch had dawned for the phonograph, that Empson's wonderful invention was the feature that the phonograph had, hitherto, so greatly needed."

With Empson's patents found basic, the Aeolian Company took up its options on the Letters Patent and settled to the task of making new and better machines. Empson, gratified that his invention had been recognised as a thing of merit by one of the largest manufacturers of musical instruments in the world, and highly delighted with the courteous treatment he had received, returned home to Australia.

In February 1913 the Trade Marks Journal advertised that the Orchestrelle Company of America, with an address at the Aeolian Hall in New Bond Street, was applying for the word 'Vocalion' to be registered with respect to talking machines, records and the like. Throughout 1913 the Aeolian Companies continued their usual line of business and then, in August 1914, when war broke out in Europe, the Aeolian Co. of New York announced that it had taken on the sale of Columbia products. It continued to mention these in its advertisements until the end of the year.

VOCALIONS IN AMERICA

In December 1914 there was an announcement that the Aeolian Company of New York had been granted Letters Patent for a mechanism which combined a gramophone with a Pianola, but of equal interest was the announcement to the trade that a range of gramophones called 'Vocalions', which were of their own manufacture, was to be put on sale with prices ranging from \$90 to \$375. All models of the new machine would incorporate the volume and tone control device of F. J. Empson and this would be known as the 'Graduola', a registered trade mark being applied for in London by the Aeolian Company of New York in the same month.

As with all new machines placed on the market, the competition was ever alert to discover if the new product could be quickly eliminated from the market or its competitive potential reduced to a minimum, and thus the American Graphophone Co. (makers of Columbia products in America) brought suit against the Aeolian Company alleging infringement of five claims in their patent rights, and other claims in patents pending. The Aeolian Company denied infringement, claiming that its machines had been constructed in full cognizance of the American Graphophone Co.'s patents. Sales of Vocalions continued.¹

One of the problems at that time was that patents had been granted to Eldridge Johnson and to a Mr. Browning covering internal horns with double doors placed at the opening to act as volume controls. Edison had to design their own internal horn cabinets without infringing such patents, and it is probably true to say that the Graduola offered the Aeolian Company a suitable form of volume control that avoided the double-doors patent, aside from any intrinsic merits it may have possessed. Victor and Brunswick were frequently involved in litigation in the American courts over the

¹ The case was reported to have been settled out of court in February 1916, with the Aeolian Co. recognising the Columbia Company's claims.

Johnson and Browning patents. Although such patent restrictions may not have been in force in Britain, the likelihood of shipping Vocalions to the U.K. in 1915, with the war gathering momentum and an import tariff of $33\frac{1}{3}\%$, was very remote.

'Graduola' was registered in 1915, as was the name 'Volunome', to the Aeolian Co. of New York. The second name foreshadowed the eventual coming of the Vocalion to Great Britain. It is interesting that two of the clockwork motors used in the American Vocalion machines had been designed by L. P. Valiquet, who was then on the Aeolian Company staff. He had designed the Zon-O-phone machines of 1898.¹

THE BRITISH VOCALIONS

There was a lapse of ten months between the appearance of Vocalions in the U.S.A. and their introduction in Great Britain, for not until October 1915 did the Orchestrelle Co. Ltd. of New Bond Street announce its line of 'Aeolian Vocalion' machines. The first advertisement for the machine stressed the personal control offered by the Graduola, and ran for six months in the 'Sound Wave' and other trade papers, before a new advertisement appeared which claimed royal appointments from H.M. King George V and H.M. King Albert of Belgium.

Initially, six different models were offered, the most expensive being housed in a Pianola-shaped cabinet. At the Aeolian Hall a special Aeolian-Vocalion Salon was established for demonstration purposes.

The trade papers gave their opinion that the Vocalion was a greatly improved gramophone with a vastly superior tone, and gave their own explanations of how that tone could be controlled at will through the patented Graduola device. Although no mention was at that time of the machines' being British made, it has come to my knowledge that the Orchestrelle Co. Ltd. had workshops at one period at Britannia Street, off the Gray's Inn Road.²

With the new March 1916 advertisement, Catalogue 9 offered "A great number of designs at varying prices" for Aeolian Vocalions. Other makes of instrument were being taken in part exchange "at a liberal valuation". The trade papers were by this time correctly describing the Graduola as a volume control rather than a tone control.

¹ In March 1915, the Aeolian Co. of Washington D.C. secured Letters Patent for an invention which was to combine the operation of a gramophone with a Pianola in unison, with the aid of a perforated paper roll. Piano accompaniment rolls, played and recorded to the scores as used by Victor for its operatic singers, had been on sale in America as early as 1911. The Universal Music Co., of Buffalo, was one of the companies supplying such rolls for use in conjunction with Victor records.

² Possibly the machines were assembled in these workshops from components imported from America - Ed.

Stockists and agents or factors were not yet in evidence; all business appears to have been conducted from the Aeolian Hall with advertisements, catalogues and an invitation to attend the Hall to hear demonstrations without any obligation to buy. By August 1916 four different advertisements had been used, all stressing the Graduola and its advantages.

To date there had been no indication that the London and New York companies had been involved with records. However, in September 1916 it was reported that the active Managing Director of the Invicta Record Co. Ltd., of London, had referred to the valuable American dollars he was earning by exporting Citizen records to the Orchestrelle Co. of America. (He was presenting his case for not being drafted into the armed forces, and claimed also to have 100,000 labels to put to his company's recordings (Guardsman Records) with such labels).

In October 1916, a year after the introduction of the Aeolian-Vocalion machines in Great Britain, the American company announced a new line of machines named 'Musolas', and the word Musola was applied for as a Registered Trade Mark in London, along with 'Phoneto'. Musola and Phoneto records began to be exported to Australia by the Orchestrelle Co. Ltd., the Phoneto records having LO prefixes to the catalogue numbers. These records too were from the Invicta Record Co.'s masters as used on the Citizen and Guardsman records, and were pressed by the Crystalate Manufacturing Co. Ltd.

(To be continued)

PEOPLE, PAPER & THINGS

by George Frow

A few years ago the Society always hired a table in the Great Hall at Alexandra Palace in North London when record bazaars were held there, and a few of our present members first came across the City of London Society there. In July 'Ally Pally' was swept by fire and declared 'almost a total loss' but it is understood that restoration work will go ahead. Alexandra Palace was opened in 1873 by the future King Edward VII's consort and in the Great Hall, we are told there was room for a choir of 2,000, a 200-strong symphony orchestra and audience of 12,000, and it was claimed to be the largest concert hall in Europe. The Victorians always did things on a big scale when they could, and unfortunately the building was always a 'white elephant'. In the late twenties and up to 1932, a number of HMV records were made on the Father Willis Giant organ by some of the outstanding generation of organists of that period. These included G. D. Cunningham, George Thalben Ball, Reginald Goss-Custard and Marcel Dupré, of whom Ball is the only survivor. The first three merited only a plum label while Dupré was put out on the more expensive black label, so perhaps he got a higher fee. According to reports, the bulk of the organ, which has never been played since wartime bomb damage, was away from the building being restored at the time of the fire. Collectors of brass band 78 records - and there are those - will recall the wonderful atmosphere, presence, and certainly echo, on those

recordings made in the Great Hall and issued on Imperial and Rex records over 45 years ago. One of these was Foden's, then at its best; the papers tell us that Foden's works is now in the receiver's hands. To close this note on the Alexandra Palace, the first British Television studios were set up there in 1936 by the B.B.C. and until ten or fifteen years ago the news bulletins were still shown from there. Now they appear to come from a tiled washroom at Shepherd's Bush.

Sydney H. Carter, always busy with improved methods of cylinder taping, has brought out a cassette of British Blue Amberols by Billy Williams and Stanley Kirkby. There are seven recordings on each track, plus Sydney Carter's spoken introduction of Billy Williams. The items are:

BILLY WILLIAMS - We're All Waiting for a Girl - Giving a Donkey a Strawberry - Kangeroo Boy - I Come frae Scotland - I Must Go Home Tonight - Oh Molly McIntyre - It's Mine When You've Done with it.

STANLEY KIRKBY - Mister Cupid - Little Miss Demure - The Grenadier - I Had Such a Wonderful Dream - Oh La La That Angel Music Man - Up from Somerset - Phil the Fluter's Ball.

These transfers come out with pronounced clarity, both artists' ability to enunciate notwithstanding, and for the first time it is possible to hear every word of 'Phil the Fluter'. Transfers to cassette have been undertaken by a specialist firm, and copies may be obtained through the Society's Publications and Reprints at £2.75 each post free. If the prices of Billy Williams' old 78 recordings are a reflection of his popularity, there should be a queue for this cassette, and Stanley Kirkby was as experienced a maker of records as any British artist; he was a talented man who could lend his voice to most material. If this cassette is well supported, Sydney Carter has plans for further issues of Blues from U.S. and Continental listings.

The first eight programmes of 'Keeping Track' went out on B.B.C. Radio 4 in July and August, and could well be the first radio programmes to cater for those who have a particular interest in the various ways of sound storage and re-playing, but please don't get steamed up if you know otherwise. For what we may hope to be a pilot series, it was very well balanced and ran from tin-foil to laser, with quite a number of technical experts and recording personalities, including the Society's Joe Pengelly and Peter Adamson, who I am prepared to wager, made the most memorable impressions of the series. These gentlemen, each with his own system of retrieval from cylinders and acoustic discs, may have conveyed to the B.B.C. what extra sources of early recordings for programmes on the past are still unrealised. On behalf of the Society I have written to the B.B.C. commending them on these programmes, and asking for a further series.

NEW BERLINERS!

Ken Champion

These are available in West Germany, but let me explain that they are a cooling drink, made in a large ballon glass filled with lager with the addition of raspberry flavouring and ice cubes. If you would like to try something similar, I suggest a mix of $\frac{2}{3}$ lager to $\frac{1}{3}$ Tizer. It is a shandy with a difference.

June, 1921.

THE TALKING MACHINE NEWS.

FLORRIE FORDE

Britain's Favourite
Chorus-Song Creator

FIRST REGAL RECORD
No. G7644:

'She Loved a Sailor.'
'K-K-K-Kiss me again.'
A Stupendous Record

ONLY ON—

REGAL RECORDS 3/-

TECHNICAL FORUM

Mike Field

A problem which plagues cylinder collectors and one which is the subject of many queries is concerned with shrinkage, particularly Blue Amberols and Indestructibles. It appears that celluloid contracts as it ages, thus reducing the diameter of the cylinder. When this happens, cored cylinders such as Blue Amberols will not go fully home on the mandrel, which prevents complete playing, and Indestructibles which normally touch the mandrel only at each end cannot be played at all.

Now you can get a file or a sharp knife and hack away material until the cylinder fits and if you are lucky or very skilled, the cylinder may rotate passably true. But it is much more likely that a cylinder so treated would be so out of true as to be acoustically useless. Unfortunately the shrinkage may not be even and the cylinder is therefore no longer round. However, if some reasonably reliable method of restoring the inner circumference to correct, circular dimensions can be utilised, the chances of reclaiming a cylinder are good. Two methods are described for core cylinders primarily and a method for uncored Indestructibles.

Figs 1 and 2 show possible methods for any plaster of Paris-cored celluloid (e.g. Blue Amberol, International Phonograph etc.). Using close-grained hardwood such as beech, a tapered cylinder is turned to the dimensions shown (for most collectors, this means the services of a skilled turner must be invoked). The handle does not need to be made in one piece with the tapered part and could be a suitable rod glued in place as suggested by the dotted lines. Adherence to the dimensions of the taper is important.

Take a sheet of coarse waterproof 'wet and dry' emery paper and cut it so that it just wraps round the wooden mandrel. The two edges should butt together. With a suitable contact adhesive, fix the emery paper firmly to the mandrel. Varnish or seal any exposed wood. In use, the device is rotated carefully inside the cylinder. No force is needed and a relatively small amount of material needs to be removed. The emery will rapidly clog with plaster of Paris and needs to be washed down regularly - hence the use of 'wet and dry'. However, make sure the paper is dry again before it touches the plaster of Paris. The motto is to check progress regularly, otherwise you will overdo it and end up with a cylinder which passes completely over the mandrel. Do not use on wax cylinders.

If you have a cylinder which fits correctly on the mandrel, place the device inside the cylinder until it is fully home and mark off a line on the emery corresponding to the end of the cylinder. The line can then be used as a 'depth gauge' for use when reclaiming cylinders.

The simple device has the disadvantage of clogging and requiring regular washing. The second device is much more effective, but is more difficult to make. For this device, turn up a hardwood mandrel as before (see note on drawing), but now mark off five equally spaced lines around the circumference of each end of the tape and join up corresponding points to produce five pencil lines along the surface of the

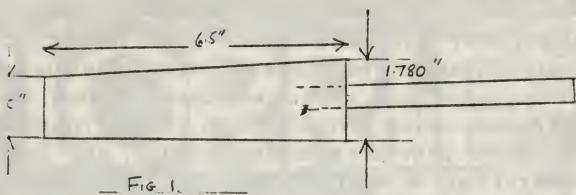


Fig. 1.

DIMENSIONS ARE FOR USE WITH
EMERY PAPER; FOR THE CUTTER
TYPE (FIG 2) THE SMALL END
DIMENSION IS 1.390" AND THE
LARGE END 1.590".

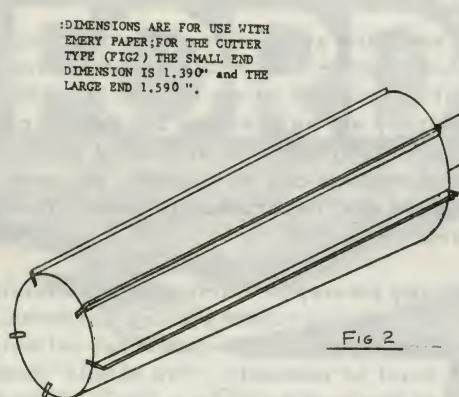


Fig. 2.

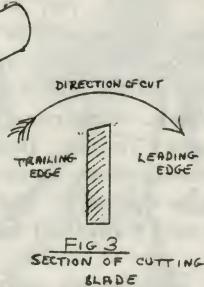


Fig. 3
SECTION OF CUTTING BLADE

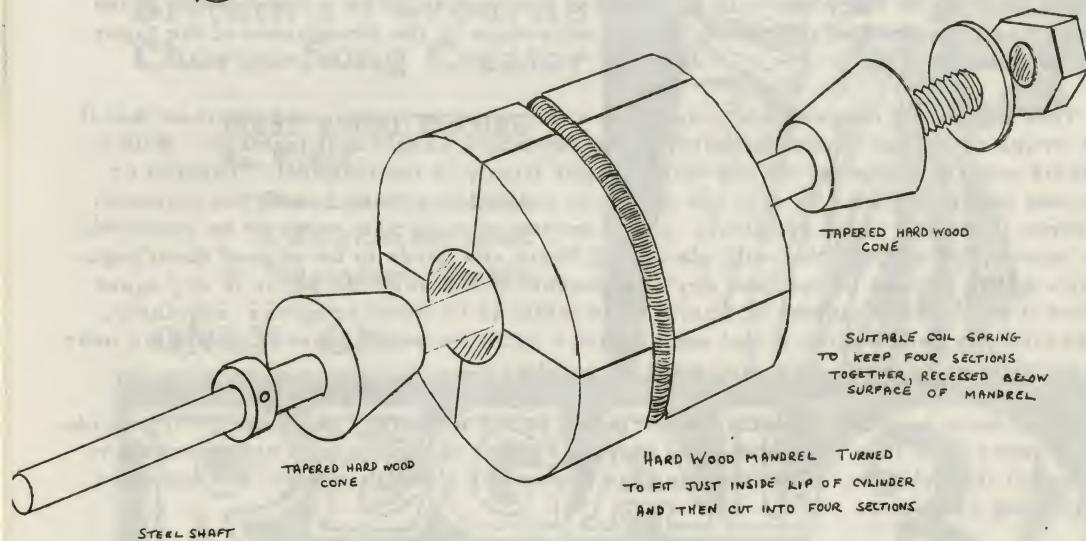


Fig. 4
SKETCH OF MANDREL SUITABLE FOR 5" CYLINDERS

taper (Fig. 2). The lines should be parallel to the axis of the tapered mandrel. With a 10-inch hacksaw, cut along the lines until five slots have been produced. Obtain five lengths of hacksaw blade (old or new) and fit them, teeth downwards, into the slots. If you have cut the slots accurately the protruding part of each and every blade should be exactly $\frac{1}{8}$ " above the surface of the wood along the entire length. If not, some adjustment must be made either by cutting the slot (or part of it) deeper or providing a little packing at the bottom of the slot. Mark each blade and its appropriate slot with corresponding numbers.

In the next operation the five blades have to be 'backed off', which means grinding off the trailing edge to give clearance. Fig. 3 shows what is needed. Each blade must be ground at the same approximate angle and of course on that side of the blade which would 'trail' in the cutting operation. Grinding needs to be done carefully so that the leading edge is just touched with the grinding wheel, otherwise your careful positioning for depth will be lost.

Once you are satisfied that the blades are sufficiently backed off, and will lie at the correct depth, fill the slots with Araldite and push in the blades. Wipe off the surplus adhesive and hold the blades in place with twisted copper wire until set. Allow at least 24 hours in a warm room.

In use the cutter is inserted in the cylinder and rotated carefully so that the cutting edges are 'leading'. The cutter is not recommended for wax cylinders. Use minimal force and check regularly.

As stated, the cutter is meant for cored cylinders; it can be used on all-celluloid types such as Edison Bell Indestructibles, Lambert etc., but if you have access to a lathe the following method is to be preferred. Make up an expanding mandrel as shown in Fig. 4, which I hope is self explanatory. The steel shaft is held in the lathe and checked for true running and the wooden parts assembled loosely on it. The cylinder is positioned on the expanding mandrel A, and the nut is tightened, thus expanding the mandrel until it lightly grips the inside surface of the cylinder. Check that the outside surface of the cylinder runs true. (Note that this type of cylinder will distort as well as shrink, and it may be impossible to make the outside surface run truly concentric. In this case the best compromise must be sought).

Once the cylinder is correctly mounted, a very light cut is taken off the outside edges of the cylinder, where it will grip the mandrel of the phonograph. Unless you own sophisticated measuring gear, this process must be one of trial and error, so be careful!

I have made such mandrels for 2" and 5" cylinders and since 5" Lamberts are fairly rare, I would be happy to turn any such cylinders needing treatment, free of charge except for postage. Since 2" cylinders are more plentiful, I cannot undertake to do these. The manufacture of the cutter described for cored cylinders requires some skill and appropriate machinery for best results. If there were enough demand perhaps a number could be made for sale or hire by the Society.

Dear Christopher,

With reference to the 'Champion' phonograph (Hillandale June issue, pp. 43-4), this does appear to be an American machine; such a one was sold very briefly in this country, and in very limited numbers. I saw one about six years ago - I believe it was called the 'Wizard' in its American incarnation. The horn arrangement is a variation in the Champion. The American version, at least the one which I saw, must have had an 'overhead' horn such as would resemble a Cygnet; the horn was missing in this case, but a man who said he had a complete one described such a horn.

Incidentally, this is the only instance of which I am aware of an American machine having a 'reversible' case. This may seem a usual enough type of case for you, considering the variety of European brands that employed this device, but I can certainly understand how unfamiliar it would seem to an American or to Mr. Pepper in Australia.

As for the travelling mandrel 'Church Supply' machine, I must say, from a strictly partisan point of view, which you may find interesting, that it does not look at all like an American machine. The horn appears to be the typical European spun aluminium type, which was never seen here. Although the drive mechanism resembles the Champion, the Church machine looks as if it has a European origin. There may be a connection here. The European suggestions of the Church phonograph and its similarity to the Champion, which additionally uses the European 'flip-over' idea, may suggest the two have a common origin. Perhaps they were 'jobbed over' to an American manufacturer by an English/European distributor (such as the Anglo-Australian Importing Co.) and sold here and abroad. Judging from the dates, the 'Church' would then appear to be the prototype of the Champion.

I assume the travelling mandrel tricks were designed to avoid certain patents. This idea of patent evading through sheer ingenuity is very fascinating to me. The idea of moving the record under the reproducer was not confined to cylinders. Aretino sold a disc machine around 1908-9 which had a turntable that travelled across the case as it revolved, and the record was played by a stationary soundbox. There were later machines built on these lines, too - Kinophone (spelling may be wrong) was one. This was all to do with getting round the patents on the tone-arm carried by the record groove.

As ever -

Tim Fabrizio.

Once again, it is encouraging to have first-hand information on overseas variations in the market, such as the absence of reversible cases and aluminium horns in America. But if the 'Church' machine were European, how strange that Die Photographische Zeitschrift knew of it only from an American magazine illustration! - Ed.

VICTOR MATRIX DATING

I collect vocal recordings, particularly those of the acoustic period, and from the start, I have been interested in dating recordings accurately, particularly after Bauer leaves off in 1909, and usually in the absence of a discography. This article makes the assumption that Victor had only one numerical matrix series during the acoustic period, and that, within that series, the record size was indicated by the prefix. In the case of the U.K. issues of Victor masters, the numerical part of the matrix number was retained, but the universal letter prefix was A, presumably to indicate an American recording. Is this all true? The article also raises a number of other points, on which I would welcome views from readers.

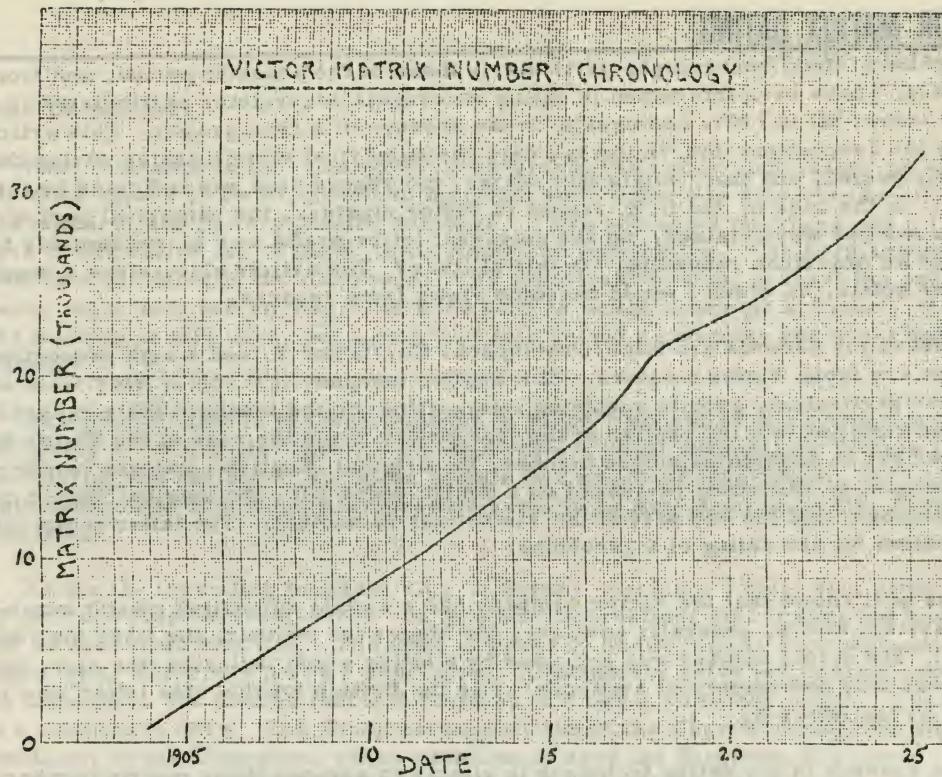
Most of my records are HMV/Gramophone Co./G and T, and a high proportion of these are from Victor masters. The English company (I'll call it HMV from now on) were particularly good in supplying information on the labels of their records, and also stamped into the shellac of the disc itself. So in the case of the Victor masters, we get an English catalogue number, the original English catalogue number (of for example, a recording re-issued on a double-sided DB), the original Victor catalogue number, and the key part of the Victor matrix number. The latter is the vital information for the dating of a recording.

It is well known that the Victor company had a simple numerical matrix numbering system where, generally speaking, the bigger the number, the later the recording. The actual number was preceded by a letter which indicated the size, but there was only one numerical sequence. For the British issues, this letter was replaced by the letter A.

The essence of my dating technique is simply to arrange these matrix numbers on a time scale, calibrating the scale with the aid of known recording dates. Many discographies give recording dates to the actual day. I have used the discographies of Caruso, Sembrich, Amato, Martinelli, McCormack and others to construct a graph of matrix number against date. The graph extends from the early days of Victor to 1925, although I have no doubt it could be extended into the electric period. The graph is shown on a small scale in the diagram. (overleaf).

Looking at my original, the first thing that strikes me is the smoothness of the data. Very few points are not very close to the line. In other words, matrix numbers were used strictly chronologically. I have come across one or two instances where the published date for a matrix number is not on the line. Invariably, the published date is later than the date predicted from the graph, and I interpret this to mean that the matrix number was originally issued on a given date but not actually used until later, perhaps because of indisposition on the part of the artist or some similar reason. There are certainly some instances where this is known to be the case.

The graph can thus be used to determine the earliest date of a recording whose matrix number is known. It would require a computer programme to say how accurate the dating was, but I think one can estimate the date to within a month or two.



Let's look at the shape of the graph in more detail, because quite a number of interesting features emerge.

First of all, the graph is nearly a straight line. This shows that from its very beginnings until 1925, the Victor company used matrix numbers at a constant rate. In twenty-one years they used about 32,000 numbers, or about 1500 recordings a year. This does not seem very much for a major company. Were there other matrix series used by Victor, after all? (This does not, of course, imply that Victor's sales of records did not expand considerably over the period - merely that the rate of making recordings did not apparently increase.) The apparent lack of increase in Victor recording facilities between 1904 and 1925 does seem remarkable, but then the recording business was a well-established commercial proposition by 1901, when Victor started, and they may well have modernised equipment over the years without increasing the rate of using matrix numbers. What is the answer to this conundrum?

There are one or two undulations in the line, notably in the 1917-18 period. It is natural to associate this with America's entry into World War I in the spring of 1917. However, the bulge, which indicates an increasing rate of making recordings, actually is getting started in the second half of 1916. During 1918, the rate of use of

matrix numbers falls right away, and it is only in the latter half of 1919 that production resumes its normal rate. Why was this? Artists being called up, the anti-German scare causing many opera singers to stop making records, or the shortage of shellac causing a cut-back in recording activities in general, a problem also suffered by Edison?

Apart from being useful in dating recordings, the graph reveals quite a lot of other information, and hints at the history of the recording art in general. For those who would like to construct a bigger-scale graph, the key points are as follows:

Year beginning	1904	matrix	800	1918	21400
	1905		2000	1919	22400
	1910		8400	1920	23500
	1915		15600	1922	26000
	1916		17000	1924	29200
	1917		19000	1925	31600

There is some sign that business was really picking up in the mid 20's. I have also constructed similar graphs, but over much shorter time scales, for the HMV Cc, HO...af series, and the Edison Diamond Disc series. All are nearly straight lines. I am defeated by the Columbia matrix series. Can anyone help?

G. W. Taylor.

REVIEWS

H. M. V. INSTRUMENT CATALOGUE, 1921

Society Reprint £1.25 post free (subject to Members' Discount)

Every now and again the Society reprints a really outstanding catalogue, a real milestone for collectors, and this British issue is welcome in that it is the last year in which the Exhibition soundbox eas offered on all models from Hayes. The No.2 began appearing in the 1922 catalogues. Also the model numbering of the gramophones is still allied to the Victor range; two years later after a number re-arrangement, the models were given mostly three-figure numbers which are more difficult to relate.

The reprint has twenty-four monochrome pages, with tinted cover.



Gerry Bezuijen, of 'Nipper' in Amsterdam, whom we have to thank for the photograph on the front cover of this issue, has sent us some reprints of Dutch catalogues issued by the Gramophone Co., ranging from an undated machine catalogue of about 1905 to one of 1923, and there are also two Gramophone and Zonophone record catalogues. The general standard of reproduction is very creditable, although one or two of the machines have come out as little more than silhouettes. Prices are not known as yet, but anyone visiting Amsterdam should certainly drop in to 'Nipper' at 171-3, Jacob v. Lennepkade.

A correspondent seeks information on a curiously marked speed indicator, found on a Celebrity cabinet gramophone fitted with a Grubu motor. The Grubu was a German motor which is not often found in this country (in the 1920s, there was an ample supply of British motors from Garrard, Collaro and others), but the speed indicator on this example is calibrated from 30-60. Someone has at some time scratched a mark at 39 - which, our correspondent points out, is exactly half 78. Can anyone throw any light on this eccentric way of counting revolutions? Did the indicator refer to the speed of an intermediate gear in the motor? Did the maker envisage a long playing record that would revolve at 39r.p.m.? Or did he simply have a perverse desire to count in pairs? A thought that occurs to me is that Grubu motors were used in the Fultograph wireless picture receiver - perhaps this had a 30-60 range and this indicator was made for a Fultograph? (No time to check a Fultograph before we go to press.)

THE HILLANDALE NEWS is published by THE CITY OF LONDON PHONOGRAPH AND GRAMOPHONE SOCIETY.

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